SAFETY PRECAUTIONS

SERVICE WARNING

Only qualified service technicians who are familiar with safety checks and guidelines should perform service work. Before replacing parts, disconnect power source to protect electrostatically sensitive parts. Do not attempt to modify any circuit unless so recommended by the manufacturer. When servicing the receiver, use an isolation transformer between the line cord and power receptacle.

SERVICING THE HIGH VOLTAGE AND CRT

Use EXTREME CAUTION when servicing the high voltage circuits. To discharge static high voltage, connect a 10K ohms resistor in series with a test lead between the receiver and CRT anode lead. DO NOT lift the CRT by the neck. Always wear shatterproof goggles when handling the CRT to protect eyes in case of implosion.

X-RAY RADIATION AND HIGH VOLTAGE LIMITS

Be aware of the instructions and procedures covering X-ray radiation. In solid-state receivers and monitors, the CRT is the only potential source of X-rays. Keep an accurate high voltage meter available at all times. Check meter calibration periodically. Whenever servicing a receiver, check the high voltage at various brightness levels to be sure it is regulating properly. Keep high voltage at rated value, NO HIGHER. Excessive high voltage may cause X-ray radiation or failure of associated components. DO NOT depend on protection circuits to keep voltage at rated value. When troubleshooting a receiver with excessive high voltage, avoid close contact with the CRT. DO NOT operate the receiver longer than necessary. To locate the cause of excessive high voltage, use a variable AC transformer to regulate voltage. In present receivers, many electrical and mechanical components have safety related characteristics which are not detectable by visual inspection. Such components are identified by a # on both the schematic and the parts list. For SAFETY, use only equivalent replacement parts when replacing these components.

SAFETY CHECKS – FIRE AND SHOCK HAZARD

Cold Leakage Checks for Receivers with Isolated Ground

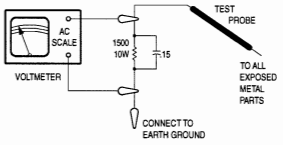
Unplug the AC cord, connect a jumper across the plug prongs, and turn the power switch on (if applicable). Use an ohmmeter to measure the resistance between the jumped AC plug and any exposed metal cabinet parts such as antenna screw heads, control shafts, or handle brackets. Exposed metal parts with a return path should measure between 1M ohms and 5.2M ohms. Parts without a return path must measure infinity.

Hot Leakage Current Check

Plug the AC cord directly into an AC outlet. DO NOT use an isolation transformer. Use a 1500 ohms, 10W resistor in parallel with a .15µF capacitor to connect between any exposed metal parts on the receiver and a good earth ground. (See figure below.) Use an AC voltmeter with at least 5000 ohms per volt sensitivity to measure the voltage across the resistor. Check all exposed metal parts and measure voltage at each point. Voltage measurements should not exceed .75VAC, 500µA. Any value exceeding this limit constitutes a potential shock hazard and must be corrected. If the AC plug is not polarized, reverse the AC plug and repeat exposed metal part voltage measurement at each point.

GENERAL GUIDELINES

Perform a final SAFETY CHECK before returning receiver to customer. Check repaired area for poorly soldered connections, and check entire circuit board for solder splashes. Check inner board wiring for pinched wires or wires contacting any high wattage resistors. Check that all control knobs, shields, covers, grounds, and mounting hardware have been replaced. Be sure to replace all insulators and restore proper lead dress.



The listing of any available replacement part herein in no case constitutes a recommendation, warranty, or guarantee by Howard W. Sams & Company as to the quality and suitability of such replacement part. The numbers of the listed parts have been compiled from information furnished to Howard W. Sams & Company by the manufacturers of the specific type of replacement part listed.

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SET 3395

3395

MODEL CS-26201

MITSUBISHI

PHOTOFACT® Technical Service Data

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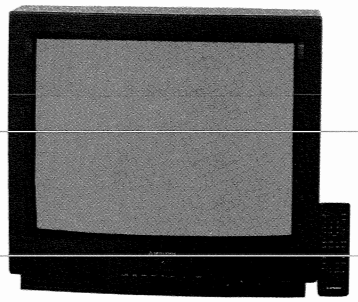
For Supplier Address, See PHOTOFACT Annual Index

MITSUBISHI
Model CS-26201



Complete coverage for servicing a television receiver...

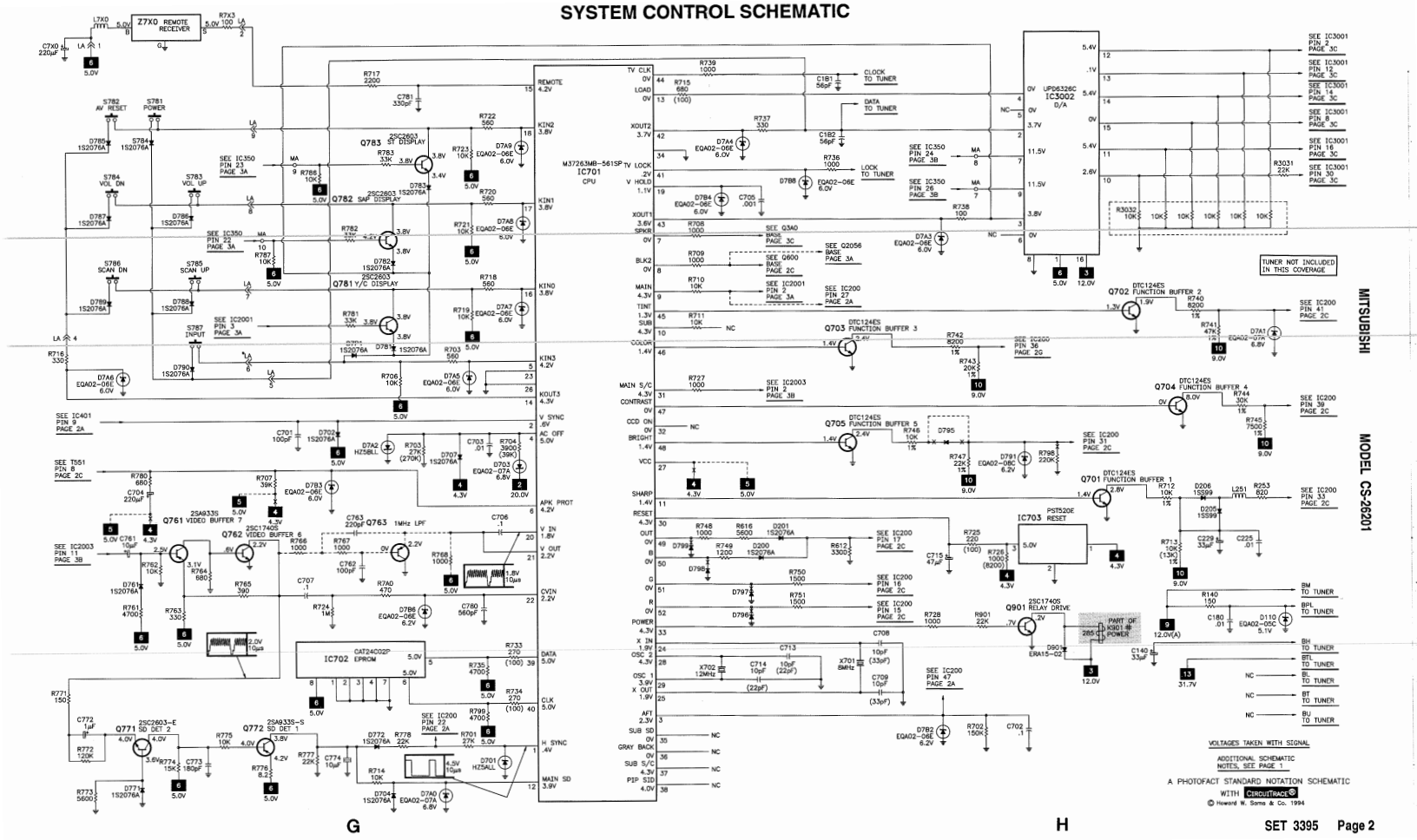
- Schematics
- Parts list
- Component locations
- Troubleshooting guide

HOWARD W. SAMS & COMPANY

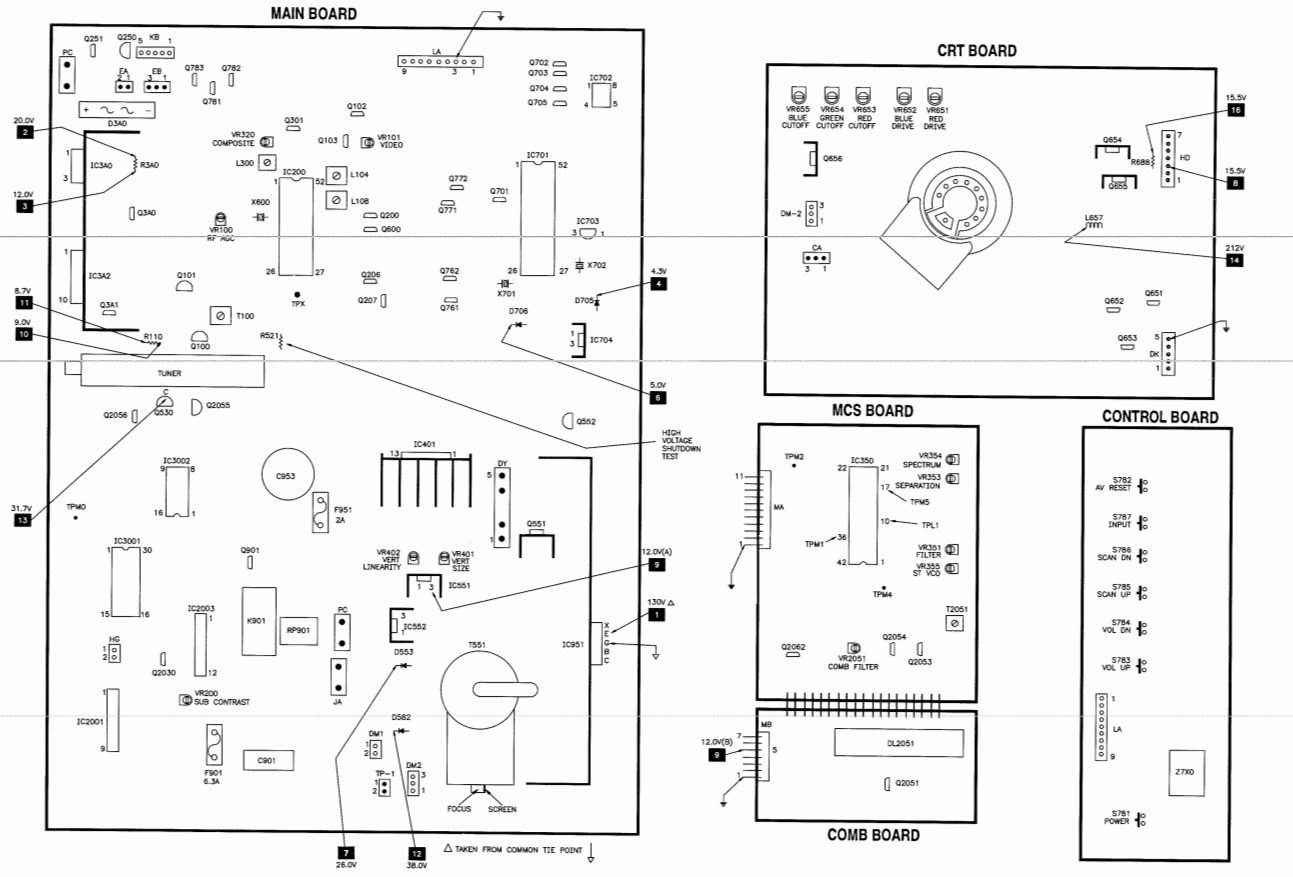
OCTOBER 1994 SET 3395

3395

SYSTEM CONTROL SCHEMATIC



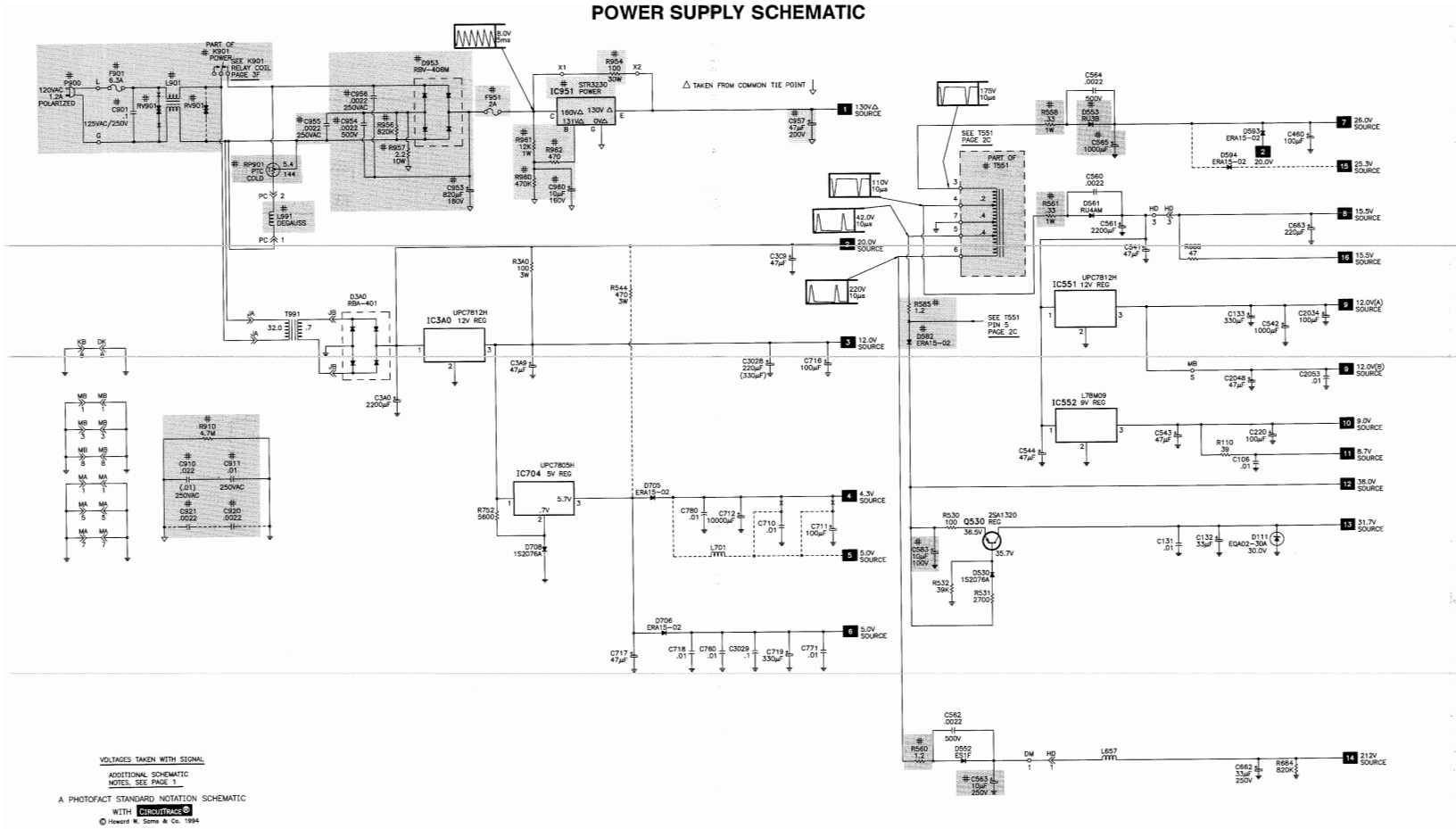
PLACEMENT CHART



MITSUBISHI

MODEL CS-26201

POWER SUPPLY SCHEMATIC



VOLTAGES TAKEN WITH SIGNAL

ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITTRACE©

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TROUBLESHOOTING

POWER SUPPLY

Check F901. If F901 is open. Check D953, C901, and C953 thru C956. Apply 120VAC and check for approximately 20.0V at the "+" pin of D3A0. If the voltage is missing, check L901, T991, and D3A0. If the voltage is present, turn receiver on and check for 130V* at the E pin of IC951. If the voltage is missing, check F951, IC951, K901, and D953. If the voltage is present, check voltages at D553, D561, D582, D552, pin 3 of IC551, pin 3 IC552, and the collector of Q530. If any of the voltages are missing, refer to the "Horizontal" section of this Troubleshooting guide.

* Taken from common tie point.

HIGH VOLTAGE SHUTDOWN TEST

Connect a jumper across R521. The receiver should go into shutdown and remain in shutdown even after removing the jumper. To restore normal operation, remove power for 30 seconds.

HIGH VOLTAGE SHUTDOWN

Note: Care should be taken in defeating the high voltage shutdown circuit as this may cause excessive X-Ray radiation and damage to the CRT and T551.

The high voltage is monitored by D582 rectifying pulses from T551 and applying the rectified voltage to D510. When D510 turns on the voltage at pin 24 of IC200 raises which shuts down the horizontal oscillator. To troubleshoot, remove R521 from the circuit and use a variable power supply for AC voltage. Start at 70.0VAC and troubleshoot to locate the defect.

HORIZONTAL

Insure that set is not in high voltage shutdown, refer to "High Voltage Shutdown section of this Troubleshooting guide. Inject a horizontal signal at the base of Q551. If horizontal deflection is now present. Check Q552, T552, and pins 23 thru 27 and 30 of IC200. If the horizontal deflection is still missing, check Q551, T551, D552, D553, D561, and D582. The high voltage rectifier is part of T551 and if defective will affect performance of horizontal circuit. Horizontal linearity or foldover problems may be caused by C551, C552, and C570 being defective.

VERTICAL

Inject a vertical signal at pin 2 of IC401. If vertical deflection is now present, check components associated with pins 28 and 29 of IC200. If vertical deflection is still missing, check IC401 and the deflection yoke. Vertical linearity or foldover problems may be caused by C454 or C455 being defective.

IF AGC

Inject a video IF signal at the IF input and check for video on CRT. If video is present, check the tuner, tuner control, and tuner AFC circuits. If video is missing, check for a video waveform at pin 44 of IC200. If the waveform is present, refer to the "Video" section of this Troubleshooting guide. If the waveform is missing, apply AGC bias to pin 49 of IC200. If video is now present at pin 44 of IC200, check pins 10 and 49 of IC200. If the video waveform is still missing at pin 44 of IC200, check Q100, Q101, and pins 8 thru 11, 45, 46, 47, 49, 50, and 51 of IC200.

VIDEO

Inject a video signal at the base of Q102 and check for video on the CRT. If video is present on CRT, refer to the "IF AGC" section of this Troubleshooting guide. If the video is missing on the CRT, check for a video waveform at the emitter of Q2030. If the waveform is missing, check Q102, Q103, IC2001, Q2051, Q2056, Q2052, Q2054, and Q2030. If the waveform at the emitter of Q2030 is present, check for a video waveform at pin 34 of IC200. If the waveform is missing, check pins 38, 40, and 42 of IC200, pins 2, 11, and 12 of IC2003, Q206, Q207, Q600, and Q200. If waveform is present at pin 34 of IC200, check Q250, Q251, and pins 43, 39, 21, and 31 thru 35 of IC200.

CHROMA

Check for a chroma waveform at pin 8 of IC2003. If waveform is missing, check Q2053, and pins 4, 5, and 8 of IC2003. If waveform is present at pin 8 of IC2003, check for chroma waveforms at pins 18, 19, and 20 of IC200. If the waveforms are missing, check pins 12 thru 21, 36, and 41 of IC200. Check the 3.58MHz oscillator at pin 13 of IC200. If chroma waveforms are present at pins 18, 19, and 20 of IC200, refer to the "Raster" section of this Troubleshooting guide.

RASTER

Check the CRT and CRT voltages. If red is missing, check pin 18 of IC200, Q651, and Q654. If green is missing, check pin 19 of IC200, Q652, and Q655. If blue is missing, check pin 20 of IC200, Q653, and Q656. If the raster has keystone shape, check the deflection yoke. If the raster has height or width problems, refer to the "Vertical", "Horizontal", or "Power Supply" sections of this Troubleshooting guide.

AUDIO

Select an active TV channel and check for an audio waveform at pin 1 of IC200. If the waveform is missing, check pins 4, 44, and 48 of IC200. If the waveform is present, check for audio waveforms at pins 28 and 29 of IC350. If waveforms are missing, check Q301 and IC350. If waveforms are present at pins 28 and 29 of IC350, check Q3A1, IC3001, Q3A0, and IC3A2. The voltage at pin 30 of IC3001 will be .7V with minimum volume and 11.1V with maximum volume.

MISCELLANEOUS ADJUSTMENTS

PRETUNING

NOTE: All procedures require an antenna connected and power applied to the receiver.

Auto Memory

1. Press the menu button.
2. Press the adjust button to select first time setup and press enter button.
3. Press the adjust button to select memorize channels and press enter button.
4. Press the adjust button to select cable antenna or indoor/outdoor antenna Press enter button, available channels are scanned and stored into memory.

Initial Setting

The following selections must be completed before performing electrical adjustments.

1. Press the menu button on remote to display menu.
2. Press buttons 0, 0, and 8 in sequence to select option menu.
3. Press adjust button to select initial and press the enter button.
4. Wait 5 seconds and apply a channel 3 signal.
5. Select option menu.
6. Set hotel to off, sync to int, call program to use.
7. Press menu button 2 times to return to normal viewing.

CAUTION: Do not select E2 and reset and then press enter button. This will set all data to minimum and all adjustments must be performed.

RF AGC

Tune in a picture. Adjust VR100 counterclockwise until snow appears in picture. Then adjust clockwise until snow just disappears.

SUB CONTRAST

Tune in a crosshatch pattern. Set brightness and color to minimum and contrast to midrange. Adjust VR200 for a just visible pattern. Set brightness to maximum and check for blooming.

VIDEO LEVEL

Tune in a color bar pattern. Connect an oscilloscope to the emitter of Q103. Adjust VR101 for 1.0Vp-p.

COMB FILTER

Tune in a color bar pattern. Connect an oscilloscope to the emitter of Q2054. Adjust VR2051 and T2051 for minimum chroma component.

VERTICAL HEIGHT & LINEARITY

Tune in a crosshatch pattern. Adjust VR401 so the pattern fills 90% of the screen. Adjust VR402 for best linearity. Adjust VR401 for a slight overscan.

CHARACTER POSITION

Press menu button on remote. Press buttons 0, 0, and 7 in sequence. Press video down button "Sub HR" should appear on screen. Press adjust button to center image on screen.

CONVERGENCE / COLOR PURITY

CAUTION: Receiver employs a CRT with yoke assembly permanently bonded. Do not attempt to remove this assembly.

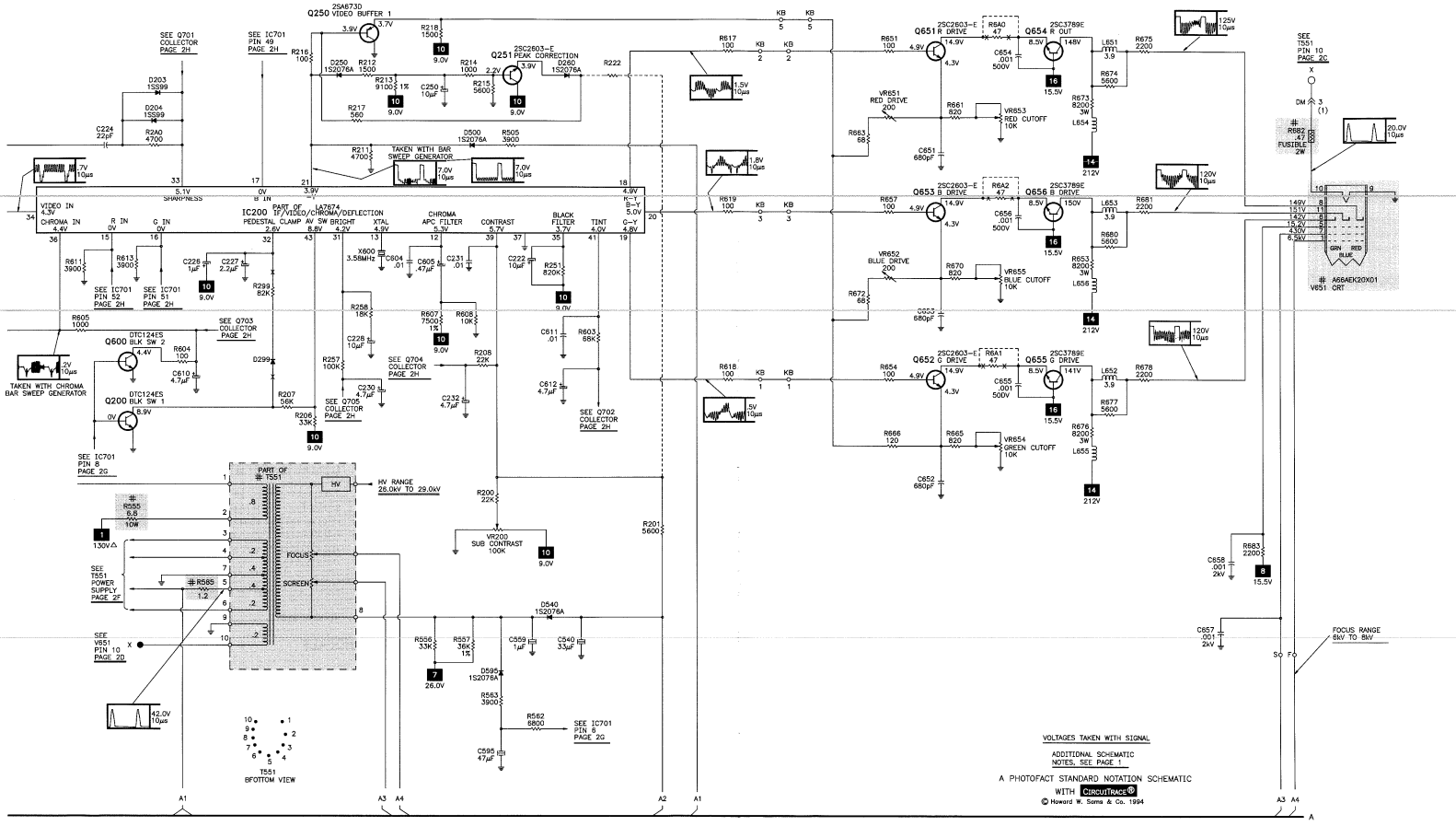
COLOR TEMPERATURE

Tune in a crosshatch pattern. Short TPX to ground to produce a service line. Adjust screen control until line is just visible. Note color of line and adjust remaining cutoff controls for a white line. Adjust screen, VR651, and VR652 controls for best white line at low and high brightness levels.

TEST JIG HOOKUP

Function	Chek-A-Color Adapter No.	PC Board Plug	Pin	Color
CRT	B239	DY	1	Red
Yoke	D482		2	Blue
Yoke Setting	YP1A		4	Black
Comments	Focus Tap		5	Yellow

TELEVISION SCHEMATIC continued


Q250 2SA673D VIDEO BUFFER 1
Q251 2SC2603-F PEAK CORRECTION
IC200 PART OF LA7674 IF/VIDEO/CHROMA/DEFLECTION
Q600 DTC124ES BLK SW 2
Q200 DTC124ES BLK SW 1
Q651 2SC2603-E R DRIVE
Q654 2SC3789E R OUT
Q653 2SC2603-E B DRIVE
Q656 2SC3789E B DRIVE
Q652 2SC2603-E G DRIVE
Q655 2SC3789E G DRIVE
VR651 RED DRIVE 200
VR653 RED CUTOFF 10K
VR652 BLUE DRIVE 200
VR655 BLUE CUTOFF 10K
VR654 GREEN CUTOFF 10K
VR200 SUB CONTRAST 100K
X600 3.58MHz
T551 BOTTOM VIEW
HV RANGE 26.0kV TO 29.0kV
FOCUS RANGE 6kV TO 8kV
TAKEN WITH BAR SWEEP GENERATOR
TAKEN WITH CHROMA BAR SWEEP GENERATOR
VOLTAGES TAKEN WITH SIGNAL
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1
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STEREO ADJUSTMENTS

NOTE: The following adjustments were made with TV/Stereo generator connected to the antenna terminals.

COMPOSITE LEVEL

Select pilot, 1kHz audio frequency, and L+R modulating signal. Select stereo mode on receiver. Connect an oscilloscope to TPM0. Adjust VR320 for 2.0Vp-p.

STEREO FILTER

Select SAP, 1kHz audio frequency, and L-R modulating signal. Select SAP mode on receiver. Connect an oscilloscope to TPM5. Adjust VR351 for minimum.

STEREO VCO

Select pilot, 1kHz audio frequency, and L-R modulating signal. Select stereo mode on receiver. Connect a frequency counter to TPM1. Place a 100K resistor between TPL1 and TPM4. Adjust VR355 for 15.75kHz, ±.05kHz. Remove resistor.

SEPARATION & SPECTRAL

Select pilot, 300Hz audio frequency, and L modulating signal. Select stereo mode on receiver. Connect an oscilloscope to TPM2. Adjust VR353 for minimum amplitude of waveform. Select 8kHz audio frequency. Adjust VR354 for minimum amplitude of waveform. Repeat adjustments until no further decrease in waveform amplitude occurs.

TEST EQUIPMENT

Test equipment listed by participating manufacturer illustrates typical or equivalent equipment used by Sams engineers to obtain measurements. This equipment is compatible with most types used by field service technicians.

Equipment	Sencore No.	Equipment	Sencore No.
Oscilloscope	SC3100	Isolation Transformer	PR57
Generators		Capacitance Analyzer	LC101, LC102
RGB	CM2000	CRT Analyzer	CR70
Multiburst Signal	VG91	AC Leakage Tester	PR57
Color Bar	VG91	Inductance Analyzer	LC101, LC102
TV Stereo	VG91	Flyback Yoke Tester	TVA92
Digital VOM	SC3100	TV Stereo Power Monitor	SR68, PA81
Frequency Meter	SC3100	Field Strength Meter	SL750
Hi-Voltage Probe	HP200	Transistor Tester	TF46
Accessory Probes	TP212	Video Analyzer	VG91, TVA92

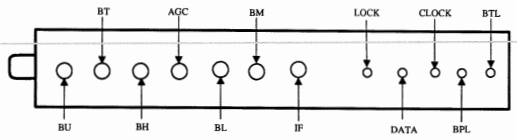
TUNER INFORMATION

TUNER VOLTAGE CHART

Pin	VHF Low Band	VHF High Band	UHF Band	Pin	VHF Low Band	VHF High Band	UHF Band
BTL	31.7V	31.7V	31.7V	AGC	4.3V	4.3V	4.3V
BPL	4.9V	4.9V	4.9V	BH	0V	11.5V	0V
CLOCK	.39V	.39V	.39V	BT	1.2V	4.2V	4.8V
DATA	3.7V	3.7V	3.7V	BU	0V	0V	11.8V
LOCK	.25V	.25V	.25V				
IF	0V	0V	0V				
BM	12.0V	12.0V	12.0V				
BL	11.5V	0V	0V				

NOTE: VHF Low Band voltages taken on channel 2.
VHF High Band voltages taken on channel 7.
UHF Band voltages taken on channel 14.

TUNER TERMINAL GUIDE



SCHEMATIC NOTES

For SAFETY use only equivalent replacement part, see parts list.

-x- Circuitry not used in some versions.

--- Circuitry used in some versions.

⏚ Ground

⏚ Chassis ground

⏚ Common tie point

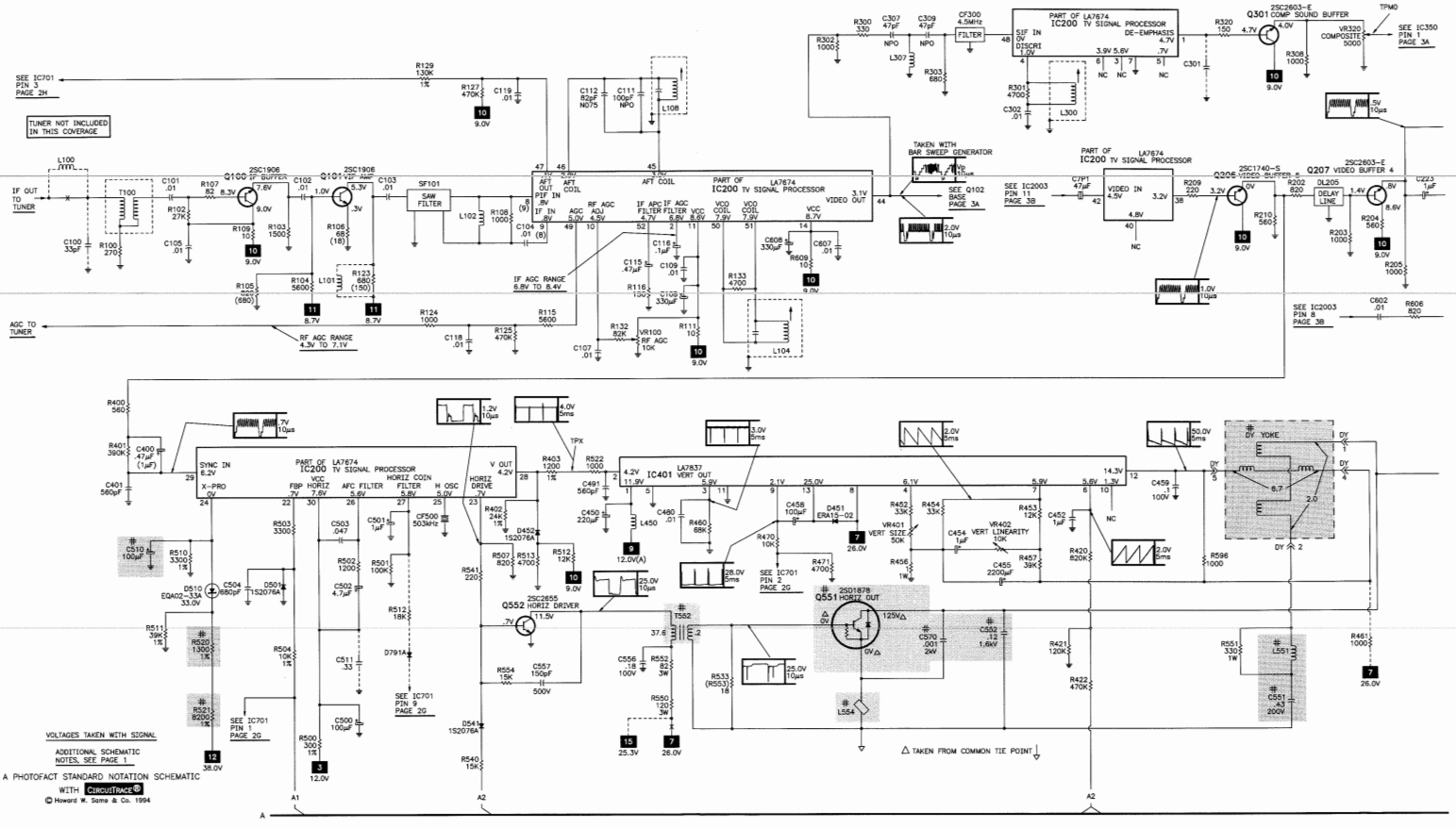
△ Taken from common tie point

3 Schematic CIRCUITRACE ®: Voltage source tie point.

A— Cabling: Heavy lines reduce use of multiple lines.

Waveforms and voltages are taken from ground, unless noted otherwise.
Waveforms taken with triggered scope and colorbar signal. Waveform voltage is peak to peak. Timebase is per division. Waveforms shown at 10 divisions.
Supply voltages maintained as seen at input.
Voltages measured with digital meter and a 1000μV RF signal, with colorbar pattern, applied to antenna terminal.
Controls adjusted for normal operation.
Capacitors are 50 volts or less, 5% or greater unless noted.
Electrolytic capacitors are 50 volts or less, 20% or greater unless noted.
Resistors are 1/2W or less, 5% or greater unless noted.
Value in ( ) used in some versions.
Measurements with switching as shown, unless noted.
Rated voltage shown on zener diodes.

TELEVISION SCHEMATIC


A
B
TUNER NOT INCLUDED IN THIS COVERAGE
IF OUT TO TUNER
AGC TO TUNER
SEE IC701 PIN 3 PAGE 2H
SAW FILTER
PART OF IC200 TV SIGNAL PROCESSOR
PART OF LA7674 IC200 TV SIGNAL PROCESSOR
IC401 LA7837 VERT OUT
Q552 HORIZ DRIVER
Q551 HORIZ OUT
Q301 COMP SOUND BUFFER
Q207 VIDEO BUFFER 4
DY YOKE
TAKEN WITH BAR SWEEP GENERATOR
SEE Q102 BASE PAGE 3A
SEE IC2003 PIN 11 PAGE 3B
SEE IC2003 PIN 8 PAGE 3B
SEE IC350 PIN 1 PAGE 3A
SEE IC701 PIN 1 PAGE 2G
SEE IC701 PIN 9 PAGE 2G
SEE IC701 PIN 2 PAGE 2G
VOLTAGES TAKEN WITH SIGNAL
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1
△ TAKEN FROM COMMON TIE POINT
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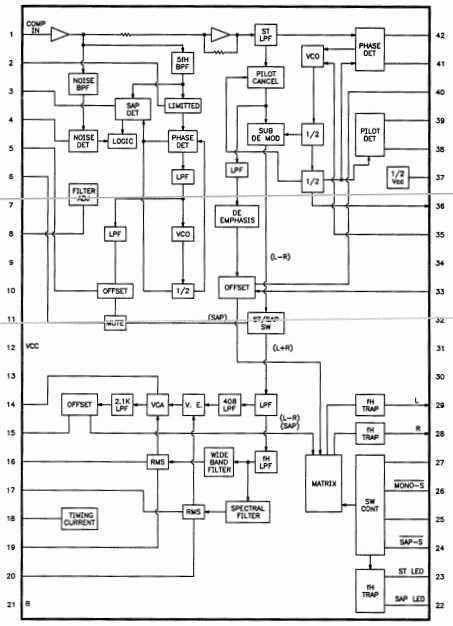
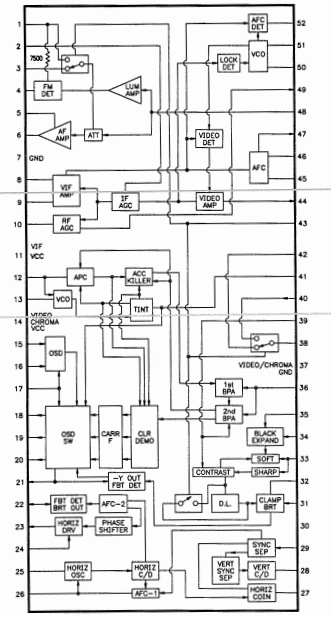
IC FUNCTIONS

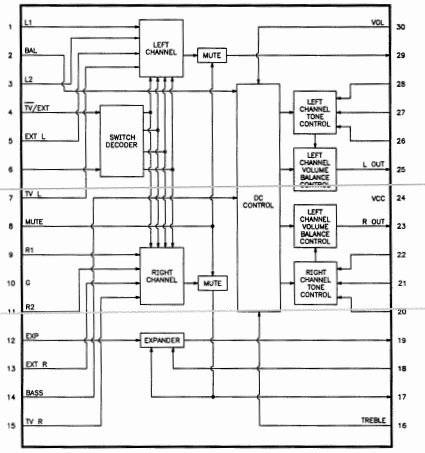
IC350
UPC1871CU



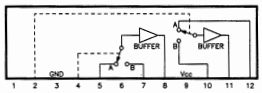
IC200
LA7674



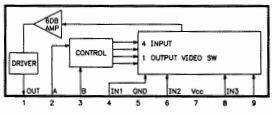
IC3001
LA7953



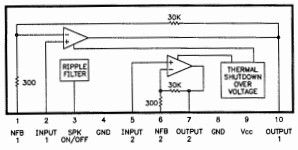
IC2003
LA7222



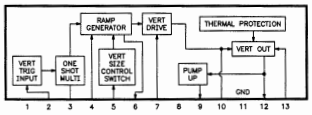
IC2001
LA7956



IC3A2
LA4270



IC401
LA7837



PARTS LIST continued

CONTROLS & RESISTORS

	Item No.	Function/Rating	Mfr. Part No.	NTE Part No.
#	**R520**	1300 1% 1/4W	103P462080	-
#	**R521**	8200 1% 1/4W	103P464070	-
	R544 (1)	470 3W	-	3W147
	R551	330 5% 1W	103C171090	1W133
#	**R555**	6.8 10% 10W Wirewound	109D067030	10W6D8
#	**R558**	.33 5% 1W	103C177040	1WD33
#	**R560**	1.2 5% 1/4W	103P338010	QW1D2
#	**R561**	.33 5% 1W	103C177040	1WD33
#	**R585**	1.2 5% 1/4W	103P338010	QW1D2
	R653, 73, 76	8200 5% 3W	-	3W282
#	**R682**	.47 5% 2W Fusible	103P437060	-
#	**R910**	4.7M 10% 1/2W	109D036020	HW547
#	**R954**	100 10% 30W Wirewound	109D105020	-
#	**R956**	820K 10% 1/2W	101P824030	HW482
#	**R957**	2.2 10% 10W Wirewound	109D075020	10W2D2
#	**R960**	470K 5% 1/4W	103P415070	QW447
#	**R961**	12K 5% 1W	103C173080	1W312
#	**R962**	470 5% 1/4W	103P412010	QW147
	R3032	10K X 6 Network	103P563070	-
	R3A0	100 5% 3W	-	3W110
#	**RP901**	5.4/144 PTC Cold	265P071040	-
#	**RV901**	Varistor	265P084020	-
	VR100	10K RF AGC	127C080080	-
	VR101	1000 Video	127C080040	-
	VR200	100K Sub Contrast	127C081020	-
	VR320	5000 Composite	127C080070	-
	VR351	20K Filter	127C180090	-
	VR353	5000 Separation	127C180070	-
	VR354	5000 Spectrum	127C180070	-
	VR355	50K ST VCO	127C191010	-
	VR401	50K Vertical Size	127C091010	-
	VR402	10K Vertical Linearity	127C080080	-
	VR651	200 Red Drive	127C020010	-
	VR652	200 Blue Drive	127C020010	-
	VR653	10K Red Cutoff	127C020080	-
	VR654	10K Green Cutoff	127C020080	-
	VR655	10K Blue Cutoff	127C020080	-
	VR2051	3000 Comb Filter	127C090060	-

 # For SAFETY use only equivalent replacement part.
(1) Used in some versions.

COILS & TRANSFORMERS

	Item No.	Function/Rating	Mfr. Part No.	On-Unit No.
#	**DY** (1)	Yoke 110° Horiz 1.3mH Vert 18mH	-	2G27012
	L100	.22µH	325C124030	-
	L101	1.8µH	325C120040	-
	L102	1.8µH	325C120040	-
	L104	VIF	323P111020	-
	L105	15µH	325C161050	-
	L108	VIF	323P171010	-
	L205 (2)	-	-	-
	L251	100µH	325C162050	-
	L300	SIF	327P073020	-
	L307	18µH	325C121060	-
	L450	1000µH	325C108070	-
#	**L551**	Horizontal Linerity	333P012090	-
#	**L554**	Ferrite Bead	411P001010	-
	L651	68µH	325C202030	-
	L652	68µH	325C202030	-
	L653	68µH	325C202030	-
	L654	68µH	325C202030	-
	L655	68µH	325C202030	-
	L656	68µH	325C202030	-
	L657	15µH	325C161050	-
	L701	10µH	325C161030	-
	L712	Ferrite Bead	-	-
#	**L901**	Line Filter	351P104010	-
#	**L991**	Degaussing	409B108010	-
	L2051	-	-	-
	L2052	-	-	-
	L7X0	10µH	325C161030	-
	T100	Trap	320P026030	-
#	**T551** (3)	Horizontal Output	334P212010	-
#	**T552**	Horizontal Drive	336P012040	P01204
	T991	Power	350P439020	-
	T2051	DL Match	409P750010	-

 # For SAFETY use only equivalent replacement part.
(1) Part of CRT.
(2) Used in some versions.
(3) Focus and screen controls are part of T551.

MISCELLANEOUS

	Item No.	Description	Mfr. Part No.	Notes
	BP2001	Bandpass	349P198010	Chroma
	CF100	Trap	296P024020	4.5MHz
	CF300	Filter	296P067010	4.5MHz
	CF500	Resonator	299P154010	503kHz
	DL205	Delay Line	337P190010	-
	DL2032	Delay Line	337P189010	-
	DL2051	Delay Line	337P188010	-
#	**F901**	Fuse	283D060030	6.3Amp, Slow Blow
#	**F951**	Fuse	283D076040	2Amp, Fast Acting
#	**K901**	Relay	287P049030	Power
#	**P900**	Line Cord	242C499040	AC, Polarized
	S781	Switch	432P100010	Power
	S782	Switch	432P100010	AV Reset
	S783	Switch	432P100010	Volume Up
	S784	Switch	432P100010	Volume Down
	S785	Switch	432P100010	Scan Up
	S786	Switch	432P100010	Scan Down
	S787	Switch	432P100010	Input
	SF101	Filter	296P096030	SAW
	SP391, 92	Speaker	480P013020	3", 8 Ohms
	TU101	Tuner (1)	295P269030	UHF/VHF
#	**V651**	CRT	255P918010	A66AEK20X01
	X600	Crystal	285P029050	3.58MHz
	X701	Crystal	285P039020	8MHz
	X702	Crystal	285P139030	12MHz
	Z7X0	Receiver	939P481030	Remote
		PC Board (1)	920D502010	Comb
		PC Board (1)	930C720001	Control
		PC Board (1)	930C473004	CRT
		PC Board (1)	920A408004	Main
		PC Board (1)	920D501010	MCS
#		Socket	449C081080	CRT
		Transmitter	939P347070	Remote

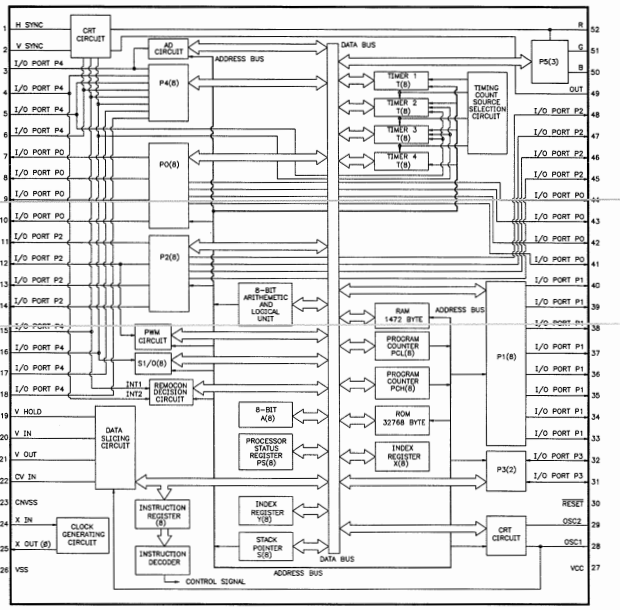
 # For SAFETY use only equivalent replacement part.
(1) Contact PTS Electronics Corporation for replacement; order by manufacturer's part number.

CABINET PARTS

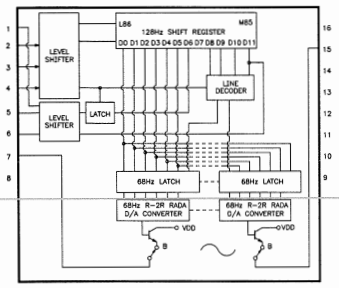
Item	Part No.
Cabinet Front Assembly	700A645020
Cabinet Back	700C165040

IC FUNCTIONS continued

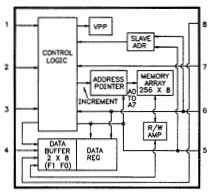
IC701
M37263MB-561SP



IC3002
UPD6326C



IC702
CAT24C02P



MITSUBISHI

MODEL CS-26201

PARTS LIST continued

SEMICONDUCTORS continued

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
D7A1	EQA02-07A	-	NTE5014A	ECG5014A	SK6A8
	RD6.8EB2	264P462030	NTE5014A	ECG5014A	SK6A8
D7A2	HZ5BLL	264P502020	-	-	-
D7A3 Thru					
D7A9	EQA02-06E	-	NTE5013A	ECG5013A	SK6A2
	RD6.2EB3	264P461080	NTE5013A	ECG5013A	SK6A2
D7B2, 7B3	EQA02-06E	-	NTE5013A	ECG5013A	SK6A2
	RD6.2EB3	264P461080	NTE5013A	ECG5013A	SK6A2
D7B4 (1)	EQA02-06E	-	NTE5013A	ECG5013A	SK6A2
	RD6.2EB3	264P461080	NTE5013A	ECG5013A	SK6A2
D7B6, 7B8	EQA02-06E	-	NTE5013A	ECG5013A	SK6A2
	RD6.2EB3	264P461080	NTE5013A	ECG5013A	SK6A2
D7P1	1S2076A	-	NTE519	ECG519	SK3100
	1S2471	264P045040	NTE519	ECG519	SK3100
IC200	LA7674	272P630020	-	-	-
IC350	UPC1871CU	272P351020	-	-	-
IC401	LA7837	272P239030	-	-	-
IC551	UPC7812H	266P934020	NTE966	ECG966	SK3592
IC552	L78M09	266P931010	NTE1902	ECG1902	SK3962
IC701	M37263MB-561SP	274P383010	-	-	-
IC702	CAT24C02P	263D002010	-	-	-
IC703	PST520E	266P136030	-	-	-
IC704	UPC7805H	266P934060	NTE960	ECG960	SK3591
# **IC951**	STR3230	267P911090	NTE1742	ECG1742	SK9995
IC2001	LA7956	272P394010	-	-	-
IC2003	LA7222	272P184010	NTE7066	ECG7066	-
IC3001	LA7953	272P139010	-	-	-
IC3002	UPD6326C	263P869010	-	-	-
IC3A0	UPC7812H	266P934020	NTE966	ECG966	SK3592
IC3A2	LA4270	272P140010	NTE1798	ECG1798	SK9745
Q100, 101	2SC1906	260P356010	NTE107	ECG107	SK3293
Q102	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q103	2SA933S-R/S	260P560040	NTE290A	ECG290A	SK9132
	2SA1115-E/F	-	NTE290A	ECG290A	SK9138
Q200	DTC124ES	260P632010	NTE2357	ECG2357	SK9742
Q206	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
Q207	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q250	2SA673D	-	NTE290A	ECG290A	SK9132
	2SA950-Y	260P255040	NTE290A	ECG290A	SK3841
Q251	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q301	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q530	2SA1320	260P469020	NTE288*	ECG288*	SK3434*
# **Q551**	2SD1878	260P607010	NTE2331	ECG2331	SK10088
Q552	2SC2655-Y	260P325030	NTE293	ECG293	SK3849
Q600	DTC124ES	260P632010	NTE2357	ECG2357	SK9742
Q651	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q652	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q653	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q654	2SC3789-DE	260P571010	NTE157	ECG157	SK3747
Q655	2SC3789-DE	260P571010	NTE157	ECG157	SK3747

 # For SAFETY use only equivalent replacement part.
(1) Used in some versions.
* Lead configuration may vary from original.

SEMICONDUCTORS continued

(Select the replacement that gives the best results.)

Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
Q656	2SC3789-DE	260P571010	NTE157	ECG157	SK3747
Q701	DTC124ES	260P632010	NTE2357	ECG2357	SK9742
Q702	DTC124ES	260P632010	NTE2357	ECG2357	SK9742
Q703	DTC124ES	260P632010	NTE2357	ECG2357	SK9742
Q704	DTC124ES	260P632010	NTE2357	ECG2357	SK9742
Q705	DTC124ES	260P632010	NTE2357	ECG2357	SK9742
Q761	2SA933S-R/S	260P560040	NTE290A	ECG290A	SK9132
	2SA1115-E/F	-	NTE290A	ECG290A	SK9138
Q762	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
Q763 (1)	-	-	-	-	-
Q771	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q772	2SA933S-R\S	260P560040	NTE290A	ECG290A	SK9132
	2SA1115-E/F	-	NTE290A	ECG290A	SK9138
Q781	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q782	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q783	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q901	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
Q2030	2SA933S-R/S	260P560040	NTE290A	ECG290A	SK9132
	2SA1115-E/F	-	NTE290A	ECG290A	SK9138
Q2051	2SA933S-R/S	260P560040	NTE290A	ECG290A	SK9132
	2SA1115-E/F	-	NTE290A	ECG290A	SK9138
Q2052	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q2053	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q2054	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122
Q2055	2SC2274-F	260P416030	NTE289A	ECG289A	SK3124A
Q2056	DTC124ES	260P632010	NTE2357	ECG2357	SK9742
Q3A0	DTC124ES	260P632010	NTE2357	ECG2357	SK9742
Q3A1	2SC2603-E/F	-	NTE289A	ECG289A	SK9137
	2SC1740S-R/S	260P559030	NTE85	ECG85	SK3122

 # For SAFETY use only equivalent replacement part.
(1) Used in some versions.

CAPACITORS & ELECTROLYTICS

Item No.	Rating	Mfr. Part No.
# **C510**	100µF 10V	-
# **C551**	.43 5% 200V	189P071060
# **C552**	.12 5% 1.6kV	172P171040
# **C563**	10µF 20% 250V	181P194000
# **C565**	1000µF 20% 35V	181P186050
# **C570**	.001 10% 2kV	154P251080
# **C583**	10µF 20% 100V	181P187040
# **C901**	.1 20% 125VAC/250VAC	189P033050
# **C910**	.022 20% 250VAC	189P133020
	.01 250VAC	-
# **C911**	.01 20% 250VAC	189P133010
# **C920, 21**	.0022	-
# **C953**	820µF 180V	185D063030
# **C954**	.0022 500V	142P014000
# **C955, 56**	.0022 250VAC	189P060060
# **C957**	47µF 20% 200V	181P189080
# **C960**	10µF 20% 160V	181P188060

 # For SAFETY use only equivalent replacement part.

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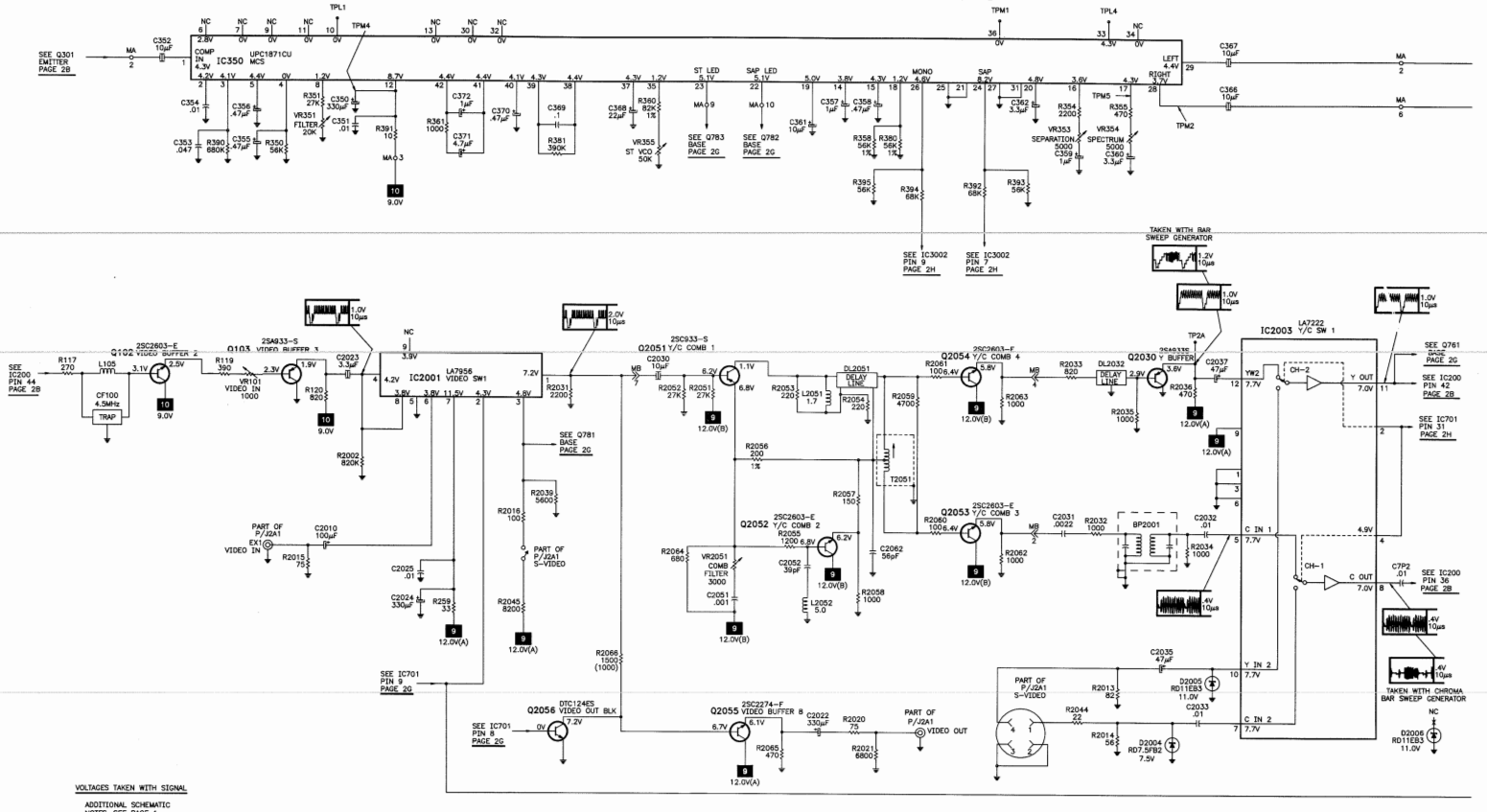
J. Barker, B. Bryant, B. Buchanan, T. Clensy, D. Cobb, G. Farrell, B. Fink, M. Herkless, J. Kocha, J. Limp, F. Malek, B. Medaris, R. Raus, B. Skinner, J. Young

STEREO SCHEMATIC & VIDEO SWITCHING SCHEMATIC


A
B
IC350 UPC1871CU MCS
IC2001 LA7956 VIDEO SW1
IC2003 LA7222 Y/C SW 1
Q102 2SC2603-E VIDEO BUFFER 2
Q103 2SA933-S VIDEO BUFFER 3
Q2051 2SC933-S Y/C COMB 1
Q2052 2SC2603-E Y/C COMB 2
Q2053 2SC2603-E Y/C COMB 3
Q2054 2SC2603-E Y/C COMB 4
Q2030 2SA933S Y BUFFER
Q2055 2SC2274-F VIDEO BUFFER 8
Q2056 DTC124ES VIDEO OUT BLK
SEE Q301 EMITTER PAGE 2B
SEE IC200 PIN 44 PAGE 2B
SEE Q781 BASE PAGE 2G
SEE IC701 PIN 9 PAGE 2G
SEE IC701 PIN 8 PAGE 2G
SEE IC3002 PIN 9 PAGE 2H
SEE IC3002 PIN 7 PAGE 2H
SEE Q783 BASE PAGE 2G
SEE Q782 BASE PAGE 2G
SEE Q761 BASE PAGE 2G
SEE IC200 PIN 42 PAGE 2B
SEE IC701 PIN 31 PAGE 2H
SEE IC200 PIN 36 PAGE 2B
TAKEN WITH BAR SWEEP GENERATOR
TAKEN WITH CHROMA BAR SWEEP GENERATOR
PART OF P/J2A1 S-VIDEO
PART OF P/J2A1 VIDEO IN
PART OF P/J2A1 VIDEO OUT
CF100 4.5MHz TRAP
VR351 FILTER 20K
VR355 ST VCO 50K
VR353 SEPARATION 5000
VR354 SPECTRUM 5000
VR2051 COMB FILTER 3000
BP2001
T2051
DL2051 DELAY LINE
DL2032 DELAY LINE
D2005 RD11EB3 11.0V
D2004 RD7.5FB2 7.5V
D2006 RD11EB3 11.0V
VOLTAGES TAKEN WITH SIGNAL
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1

A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®

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PARTS LIST

MAIN BOARD, GRIDTRACE LOCATION GUIDE continued

Q705	B-2	R403	I-7	R713	G-7	R2031	N-16
Q761	E-7	R420	F-10	R714	E-5	R2032	L-15
Q762	E-7	R421	F-10	R715	C-8	R2033	M-16
Q771	E-5	R422	F-10	R716	D-5	R2034	L-15
Q772	E-5	R452	F-12	R717	C-2	R2035	L-15
Q781	K-2	R453	F-12	R718	E-4	R2036	L-16
Q782	K-2	R454	F-12	R719	E-4	R2039	K-17
Q783	L-2	R456	G-11	R720	E-4	R2044	K-18
Q901	J-14	R457	F-13	R721	E-4	R2045	K-18
Q2030	L-15	R460	F-11	R722	E-4	R2065	L-10
Q2055	L-10	R470	F-10	R723	E-3	R2066	M-10
Q2056	L-11	R471	F-10	R724	E-6	R3001	N-13
Q3A0	L-5	R500	K-3	R725	B-6	R3002	N-14
Q3A1	M-8	R501	I-7	R726	B-6	R3005	N-18
R100	K-8	R502	J-7	R727	A-6	R3006	N-18
R102	K-8	R503	J-7	R728	A-5	R3009	M-18
R103	L-8	R504	K-7	R733	B-3	R3010	M-18
R104	L-7	R505	J-7	R734	B-3	R3014	L-15
R105	L-8	R507	I-8	R735	A-3	R3015	L-14
R106	L-8	R510	J-8	R736	A-5	R3016	L-15
R107	K-8	R511	J-8	R737	A-4	R3017	L-14
R108	K-5	R512	H-6	R738	A-4	R3018	L-15
R109	L-9	R513	H-6	R739	A-4	R3019	L-13
R110	L-8	R520	I-8	R740	C-1	R3028	K-13
R111	K-6	R521	I-8	R741	F-4	R3029	N-16
R115	I-4	R522	E-10	R742	C-2	R3030	N-16
R116	H-4	R530	L-10	R743	F-4	R3031	M-12
R117	G-4	R531	L-10	R744	C-2	R3032	L-12
R119	H-3	R532	L-10	R745	F-4	R2A0	H-7
R120	G-3	R533	C-12	R746	C-2	R3A0	L-4
R123	L-8	R540	C-10	R747	F-4	R3C0	N-6
R124	M-8	R541	B-10	R748	D-2	R3C1	M-7
R125	J-3	R550	E-11	R749	B-4	R3C4	N-7
R127	I-4	R551	B-12	R750	D-2	R3C5	M-6
R129	I-4	R552	C-11	R751	D-2	R3C6	M-5
R132	K-5	R554	C-10	R752	B-8	R3C7	M-6
R133	H-4	R555	B-14	R761	E-7	R3F0	M-5
R140	K-10	R556	G-18	R762	E-8	R3F1	M-7
R200	J-12	R557	F-19	R763	E-7	R3F2	M-7
R201	D-10	R558	F-16	R764	E-7	R3X0	N-8
R202	G-8	R560	F-18	R765	E-7	R7A0	D-6
R203	G-8	R561	F-17	R771	F-6	RP901	I-15
R204	G-7	R562	D-10	R772	F-5	RV901	I-17
R205	G-8	R563	D-10	R773	E-4	SF101	L-4
R206	H-6	R585	F-18	R774	E-4	T100	K-9
R207	H-5	R596	E-12	R775	E-5	T551	D-17
R208	G-5	R603	G-5	R776	E-4	T552	C-12
R209	H-6	R604	G-6	R777	E-5	TPM0	M-12
R210	G-6	R605	C-6	R778	D-8	TPX	I-7
R211	M-2	R606	G-6	R780	C-7	VR100	K-5
R212	M-2	R607	K-6	R781	L-4	VR101	G-3
R213	N-2	R608	K-6	R782	L-4	VR200	L-16
R214	N-1	R609	K-6	R783	L-4	VR320	J-3
R215	N-1	R611	H-3	R786	N-11	VR401	E-13
R216	M-1	R612	H-3	R787	M-11	VR402	F-13
R217	M-1	R613	H-3	R798*	C-2	X600	J-5
R218	M-2	R616	J-7	R799	A-3	X701	D-7
R251	H-6	R617	L-6	R901	J-13	X702	B-6
R253	H-7	R618	L-6	R910	H-11		
R257	H-7	R619	L-7	R954	B-14		
R258	H-8	R701	C-7	R956	G-14		
R259	M-17	R702	C-3	R957	H-14		
R299*	G-6	R703	D-3	R960	A-17		
R300	G-4	R704	F-3	R961	A-16		
R301	J-4	R705	D-3	R962	A-17		
R302	H-4	R706	D-3	R2002	N-17		
R303	G-5	R707	C-7	R2013	K-18		
R308	J-3	R708	D-3	R2014	K-17		
R320	J-3	R709	D-3	R2015	M-18		
R400	I-8	R710	D-5	R2016	K-18		
R401	I-8	R711	D-5	R2020	L-18		
R402	H-7	R712	D-6	R2021	L-18		

* Located on bottom of board

Important Parts Information

- The parts listed here are those not usually available from a well-stocked supply cabinet or bin.
- Where items may be replaced with equivalent parts, several alternates are shown from participating vendors.
- On the parts lists, safety items are marked with a # to remind you that only exact replacements are recommended for these items.
- When ordering parts, state the model number, part number, and description.

Obtaining Parts

Many of these parts are available from your local Sams authorized distributor or the manufacturer of the equipment. Call Sams for the name of your nearest distributor:

800-428-7267

Or consult the Sams *Annual Index* for the address of the original equipment manufacturer.

Participating Vendors

Information on test equipment and replacement parts is listed in these pages for the following participating vendors. Consult the Sams *Annual Index* for their current address.

- Custom Components Corporation (Chek-A-Color)
- NTE Electronics, Inc. (NTE)
- Philips ECG Company (ECG)
- PTS Electronics Corporation (PTS)
- Sencore, Inc.
- Thomson Consumer Electronics, Inc. (SK, TCE)

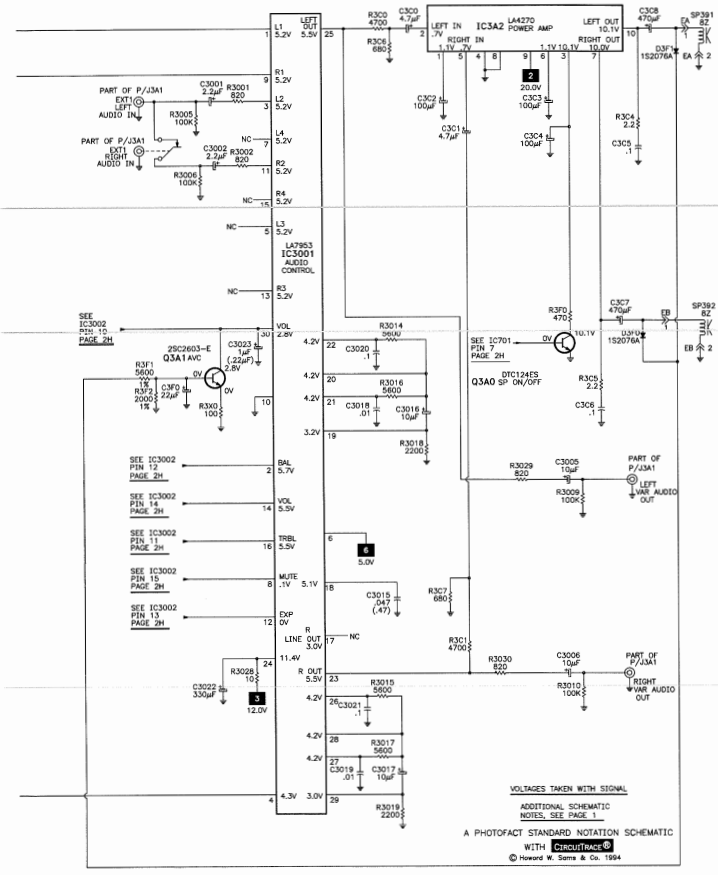
SEMICONDUCTORS

(Select the replacement that gives the best results.)

	Item No.	Type No.	Mfr. Part No.	NTE Part No.	ECG Part No.	TCE Part No.
	D110	EQA02-05C	-	NTE5010A	ECG5010A	SK5A1
		RD5.1EB1	264P460060	NTE5010A	ECG5010A	SK5A1
	D111	EQA02-30A	-	NTE5035A	ECG5035A	SK30A
		RD30FB3	264P491090	NTE5084A	ECG5084A	SK30V
	D200	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D201	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D203 Thru					
	D206	1S899	264P389010	NTE112	ECG112	SK3089
	D250, 60	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D299	-	-	-	-	-
	D451	ERA15-02	264P825010	NTE552	ECG552	SK9000
	D452	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D500, 01	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D510	EQA02-33A	-	NTE5036A	ECG5036A	SK33A
		RD36EB1	264P471010	NTE5037A	ECG5037A	SK36A
	D530, 40, 41	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D552	ES1F	264P295030	NTE558	ECG558	SK3998
#	**D553**	RU3B	264P102020	NTE552	ECG552	SK3318A
	D561	RU4AM	264P358070	NTE580	ECG580	SK5036
#	**D582**	ERA15-02	264P825010	NTE552	ECG552	SK9000
	D593, 94	ERA15-02	264P825010	NTE552	ECG552	SK9000
	D595	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D701	HZ5ALL	264P502010	-	-	-
	D702	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D703	EQA02-07A	-	NTE5014A	ECG5014A	SK6A8
		RD6.8EB2	264P462030	NTE5014A	ECG5014A	SK6A8
	D704	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D705, 06	ERA15-02	264P825010	NTE552	ECG552	SK9000
	D707, 08	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D761	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D771, 72	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D781 Thru					
	D789	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D790	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D791	EQA02-08C	-	NTE5016A	ECG5016A	SK8A2
		RD6.2FB1	264P484060	NTE137A	ECG137A	SK6V2
	D795	-	-	-	-	-
	D901	ERA15-02	264P825010	NTE552	ECG552	SK9000
#	**D953**	RBV-406M	264P512040	NTE5330	ECG5330	SK9972
	D2004	RD7.5FB2	264P485060	NTE138A	ECG138A	SK7V5
	D2005, 06	RD11EB3	264P464090	NTE5020A	ECG5020A	SK11A
	D3A0	RBA-401	264P613010	-	-	-
	D3F0, 3F1	1S2076A	-	NTE519	ECG519	SK3100
		1S2471	264P045040	NTE519	ECG519	SK3100
	D7A0	EQA02-07A	-	NTE5014A	ECG5014A	SK6A8
		RD6.8EB2	264P462030	NTE5014A	ECG5014A	SK6A8

 # For SAFETY use only equivalent replacement part.

C
AUDIO SCHEMATIC


IC3A2 LA4270 POWER AMP
LEFT IN
RIGHT IN
LEFT OUT
RIGHT OUT
IC3001 LA7953 AUDIO CONTROL
Q3A1 2SC2603-E AVC
Q3A0 DTC124ES SP ON/OFF
PART OF P/J3A1 EXT1 LEFT AUDIO IN
PART OF P/J3A1 EXT1 RIGHT AUDIO IN
LEFT VAR AUDIO OUT
RIGHT VAR AUDIO OUT
VOLTAGES TAKEN WITH SIGNAL
ADDITIONAL SCHEMATIC NOTES, SEE PAGE 1
A PHOTOFACT STANDARD NOTATION SCHEMATIC WITH CIRCUITRACE®
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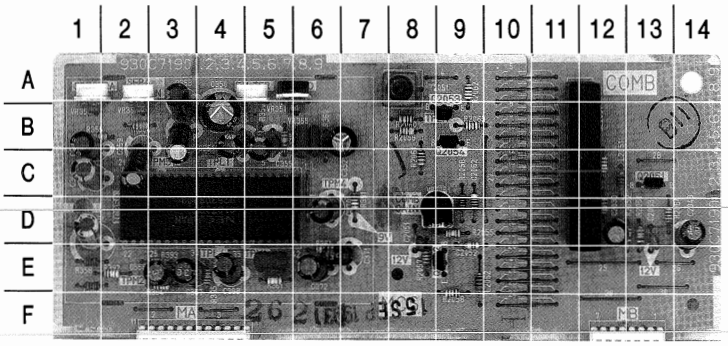
MCS BOARD



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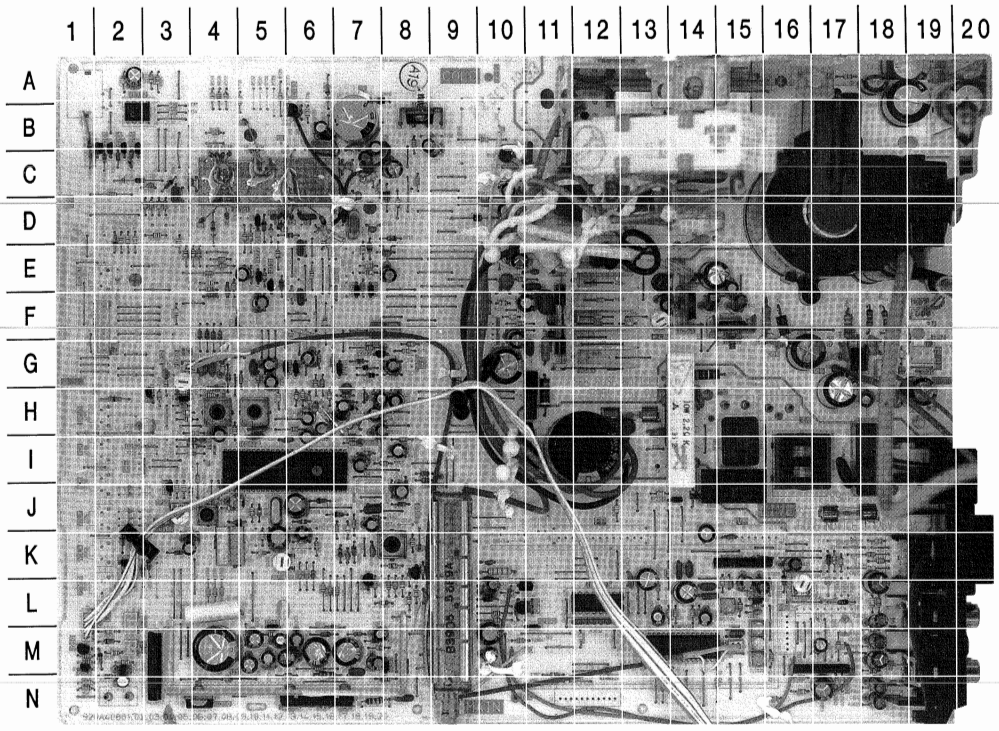
MCS BOARD, GRIDTRACE LOCATION GUIDE

C350	B-4	C366	E-3	DL2051	B-12	R355	B-1	R2052	D-13	T2051	A-8
C351	C-4	C367	E-3	IC350	C-5	R358	E-1	R2053	D-12	TPL1	C-4
C352	B-7	C368	E-4	L2051	C-12	R360	B-6	R2054	C-12	TPM1	D-4
C353	B-6	C369	E-5	L2052	E-9	R361	E-6	R2055	D-9	TPM2	E-3
C354	B-6	C370	D-6	MA	F-2	R380	E-1	R2056	D-9	TPM4	C-7
C355	B-5	C371	E-7	MB	F-13	R381	E-5	R2057	E-8	TPM5	C-3
C356	B-4	C372	E-6	Q2051	C-13	R390	B-5	R2058	E-9	VR351	A-5
C357	B-3	C2030	D-12	Q2052	E-9	R391	D-7	R2059	B-8	VR353	A-2
C358	B-3	C2048	D-14	Q2053	B-9	R392	E-2	R2060	B-8	VR354	A-1
C359	C-2	C2051	D-8	Q2054	B-9	R393	E-3	R2061	C-8	VR355	A-6
C360	B-1	C2052	D-9	R350	B-5	R394	E-3	R2062	A-9	VR2051	D-9
C361	D-1	C2053	D-13	R351	B-4	R395	E-4	R2063	B-9		
C362	C-1	C2062	D-9	R354	B-2	R2051	D-13	R2064	D-13		

MAIN BOARD



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MAIN BOARD, GRIDTRACE LOCATION GUIDE

BP2001	L-15	C602	F-6	C3A0	M-4	D7A2*	D-3
C101	K-7	C604	J-6	C3A9	M-5	D7A3	C-5
C102	L-8	C605	K-6	C3C0	M-5	D7A5	D-4
C103	K-5	C607	K-6	C3C1	M-7	D7A6	D-5
C104	J-5	C608	J-6	C3C2	M-5	D7A7	D-5
C105	L-8	C610	G-6	C3C3	M-6	D7A8	D-5
C106	L-8	C611	I-6	C3C4	M-6	D7A9	D-6
C107*	I-5	C612	G-5	C3C5	N-8	D7B2	C-3
C108	K-5	C701	C-4	C3C6	M-7	D7B3	D-4
C109*	I-6	C702	C-3	C3C7	M-6	D7B6	D-6
C111	H-5	C703	D-3	C3C8	M-7	D7B8	B-5
C112	H-5	C704	C-7	C3C9	M-5	D7P1	H-2
C115	H-4	C705	D-6	C3F0	M-7	DL205	F-7
C116	J-4	C706	E-6	C7P1	K-14	DL2032	M-15
C118	J-3	C707	F-6	C7P2	K-15	DY	D-14
C119	I-3	C708	D-7	CF100	G-4	EA	M-2
C131	L-10	C709	D-7	CF300	G-5	EB	L-2
C132	L-10	C710	B-7	CF500	J-7	F901	J-17
C133	M-10	C711	B-7	D110	K-10	F951	H-13
C180	K-10	C712	B-7	D111	K-10	IC200	I-4
C220	H-6	C713	C-7	D200	D-2	IC401	E-11
C222	H-6	C714	C-7	D201	J-6	IC551	F-14
C223	H-7	C715	B-6	D203	H-7	IC552	F-15
C224	H-7	C716	C-8	D204	H-7	IC701	C-4
C225	G-8	C717	C-9	D205	G-7	IC702	B-2
C226	H-6	C718	A-2	D206	G-7	IC703	B-6
C227	H-7	C719	A-2	D250	M-2	IC704	B-8
C228	H-8	C760	E-8	D260	M-2	IC951	A-15
C229	G-8	C761	E-8	D299*	H-6	IC2001	M-16
C230	H-7	C771	E-4	D451	F-11	IC2003	K-15
C231	H-6	C772	F-5	D452	H-6	IC3001	M-13
C232	G-5	C773	F-4	D500	J-7	IC3002	L-12
C250	N-2	C774	E-5	D501	K-7	IC3A0	N-4
C302	J-4	C780	D-6	D510	J-8	IC3A2	N-6
C307	G-4	C781	C-3	D530	L-10	JA	H-16
C309	G-4	C901	I-18	D540	C-11	JB	N-2
C400	I-8	C910	I-11	D541	C-11	K901	J-15
C401	H-7	C911	H-11	D552	G-18	KB	L-1
C450	E-10	C953	I-12	D553	F-16	L102	J-4
C452	F-11	C954	H-13	D561	G-18	L104	H-4
C454	F-13	C955	H-14	D582	G-18	L105	G-4
C455	G-10	C956	H-13	D593	D-10	L108	H-5
C458	G-10	C957	A-19	D595	E-10	L251	G-7
C459	G-11	C960	A-18	D701	C-4	L300	J-4
C460	F-11	C2010	M-18	D702	D-4	L307	G-4
C480	E-11	C2022	L-18	D703	F-4	L450	E-10
C491	E-11	C2023	M-17	D704	D-5	L551	B-12
C500	H-7	C2024	N-17	D705	B-7	L554	C-12
C501	I-7	C2025	N-17	D706	C-8	L901	I-16
C502	J-7	C2031	L-15	D707	A-6	LA	F-2
C503	J-7	C2032	L-15	D708*	B-8	MA	N-12
C504	K-7	C2033	K-15	D761	E-7	MB	L-16
C510	J-8	C2034	L-15	D771	E-5	PJ2A1	M-19
C540	C-10	C2035	K-16	D772	D-8	PC	H-15
C541	F-14	C2037	L-15	D782	K-2	Q100	K-8
C542	E-14	C3001	N-18	D783	K-2	Q101	K-7
C543	F-15	C3002	N-18	D791	C-2	Q102	H-3
C544	E-15	C3005	M-18	D795	C-2	Q103	H-3
C551	B-14	C3006	L-18	D796	C-4	Q200	G-6
C552	C-14	C3015	M-15	D797	C-4	Q206	G-7
C556	C-11	C3016	L-14	D798	C-4	Q207	G-7
C557	C-10	C3017	L-13	D799	C-4	Q250	M-1
C559	H-18	C3018	L-14	D901	J-14	Q251	M-1
C560	G-17	C3019	K-14	D953	H-14	Q301	J-3
C561	H-17	C3020	L-14	D2004	K-17	Q530	L-10
C562	G-18	C3021	K-14	D2005	L-16	Q551	C-12
C563	H-19	C3022	L-14	D2006	L-17	Q552	C-10
C564	G-16	C3023	M-13	D3A0	M-3	Q600	G-6
C565	G-16	C3028	K-13	D3F0	M-6	Q701	D-5
C570	D-12	C3029	K-13	D3F1	L-6	Q702	B-2
C583	H-18	C1B1*	J-9	D7A0	D-5	Q703	B-2
C595	D-10	C1B2*	K-10	D7A1	B-1	Q704	B-2